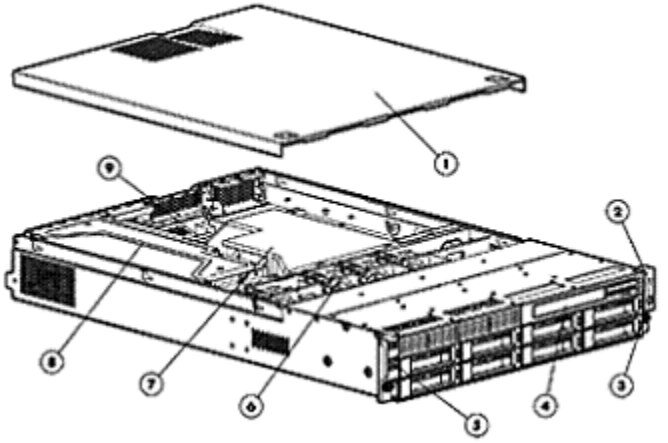
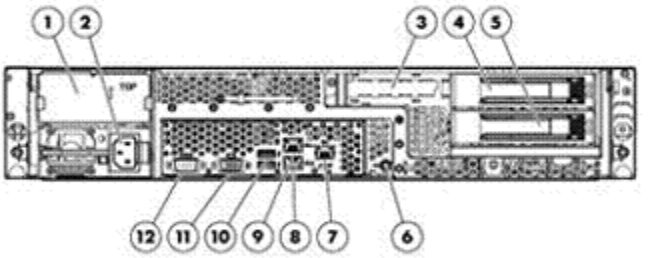
Overview





Front View:

1. Access panel
2. Front LED Indicators
3. Power on/off
4. Optional DVD-RW or DVD-ROM drive
5. Front USB Ports (2)
6. Non-Hot Plug Non Redundant fans (4 fans)
7. Air Baffle
8. PCI Cage
9. System Board

Rear View:

1. Redundant Power Supply Bay (Optional)
2. Power Supply Cable Socket
3. Low Profile Card Slot
4. PCI Expansion Card Slot
5. PCI Expansion Card Slot
6. UID LED Button
7. (Optional) LO100i 10/100 Mbps LAN port for IPMI management (RJ-45)
8. LAN Port
9. LAN Port
10. 2 Rear USB 2.0 Ports
11. VGA Port
12. Serial Port

What's New

- Support for SAS and SATA Hot Plug SFF Midline (MDL) Drives

At A Glance

The HP ProLiant DL180 G6 is a low cost high capacity storage optimized 2-way server that delivers on a history of design excellence and 2U density for a variety of rack deployments and applications.

- Processors:
  - Supports up to two Quad-Core Intel® Xeon® processors: 5500 sequence with 8MB Level 3 cache
  - Intel® 5520 Chipset
- Memory:
  - Up to 96GB, using PC3-8500R DDR3Registered (RDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 12 slots.
  - Up to 24GB, using PC3-10600E DDR3 Unbuffered (UDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 12 slots
- Internal Drive Support:
  - Support for up to twenty-five (25) SFF with a Smart Array controller.
  - Support for up to fourteen (14) LFF with a Smart Array controller:
    - Hot Plug Serial ATA (SATA) Models: Up to 14.0TB (14 x 1TB Hot Plug 3.5" hard drives)
    - Hot Plug Serial Attached SCSI (SAS) Models: SAS Model: Up to 14.0TB (14 x 1TB Hot Plug 3.5" hard drives)

Overview

- NOTE: Four (4), eight (8) and twelve (12) hard drives models are supported standard via BTO. Eight (8) and twelve (12) hard drive model support requires the addition of a Smart Array or HBA controller. Hot Plug and SAS functionality require the addition of a Smart Array or HBA controller.

- Network Controller:
  - HP NC362i Integrated Dual Port Gigabit Server Adapter
- Storage Controllers:
  - 4 HDD BTO Models: HP Embedded SATA RAID Controller RAID 0,1,10
    NOTE: Transfer rate: up to 3 Gb/s SATA
    NOTE: To enable RAID on Embedded SATA, use the HP Smart Array B110i SATA Raid controller, To enable use of the B110i, enter the ROM based setup utility(RBSU). The option for enabling RAID can be found in the Advanced section of the RBSU
  - 8 HDD BTO Models: HP Smart Array P410 /256MB Controller (RAID 0/1/1+0/5/5+0)
    NOTE: A minimum of 256 MB cache, battery kit, and Smart Array Advanced Pack License Key upgrade is required to enable RAID 6, 6+0
  - 12 HDD BTO Models: HP Smart Array P212 /256MB Controller(RAID 0/1/1+0/5/5+0)
    NOTE: A minimum of 256 MB cache, battery kit, and Smart Array Advanced Pack License Key upgrade is required to enable RAID 6, 6+0
- Expansion Slots:
  - One available Low Profile x16 PCI-Express slot using a Low profile Riser
  - Two Full Height/ Full Length Riser options:
    - Option1: 2 x8 full-length/full-height PCI-Express slots (Standard)
    - Option2: 2 PCI-X, full-length/full-height riser Slots(Optional)
    - Option 3: 1 x16 full-length / full-height slot (Optional)
- Power Sources:
  - Dual Common Slot Bay for Right Sized, Hot plug and Redundant Power
    - HP 750W CS HE Gold Power Supply
    - HP 460W CS HE Gold Power Supply
- Infrastructure Management:
  - HP Insight Control suite for Linux (ICE-LX), a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, monitor, control and optimize your IT infrastructure through a single, simple management console. The ICE-LX suite supports Linux-based servers and management consoles
  - HP ProLiant Onboard Administrator Powered Lights-Out 100i with optional LO100i Advanced Licenses for Virtual KVM and Virtual Media.
  - The HP ProLiant Easy Set-up CDs and ISO image downloads offer Assisted and Manual single server installation, setup, and deployment capability. Capabilities provided are:
    - AutoRun
    - Assisted Installation Microsoft Windows 2003 Server and Microsoft Windows 2008 Server
    - OS and SW available for Manual Installation are listed on each servers' QuickSpecs
- Ports:
  - Five USB ports (two front, two rear , one optional internal)
    NOTE: In order to utilize the internal USB port the USB cable (P/N: 536769-B21) must be connected to the internal USB header
- Optical Drive:
  - Support for one (optional): DVD-ROM, DVD/CD RW
- Form Factor:
  - 2U rack models
- Operating Systems and Virtualization Software:
  - Supports Windows, RHEL, SLES, Solaris, VMware, and Citrix Essentials for XenServer (Retail)
- Deployment/Serviceability:
  - HP ProLiant DL180 G6 models have fixed rails which provide support for racks with round mounting holes and tool-free support for racks with square mounting holes (including Compaq/HP 7000, 9000, 10000 and HP series), with an adjustment range of 26" - 36"

Overview

- Tool-less access to all system components for easy in rack serviceability
- Customer Self Repair (CSR): HP products are designed with many CSR parts to minimize repair time and allow for greater flexibility in performing defective parts replacement

- Warranty:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and parts replacement is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one-year warranty. SAS Enterprise drives have a 3 year warranty.
    NOTE: Server Warranty includes 3-Years Next Business Day Parts replacement, 0-Years Labor, 0-Years Onsite support.
    Additional information regarding worldwide limited warranty and technical support is available at:
    http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Standard Features

NOTE: For the Standard Features shipped in the Factory Integrated Models, please see the "Configuration Information - Factory Integrated Models" section.

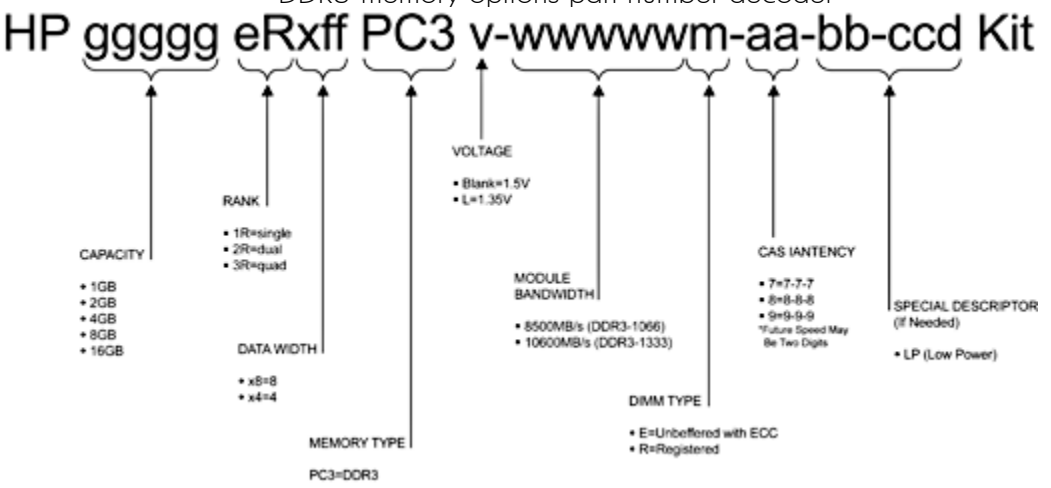
Processor One of the following depending on Model	Quad-Core Processors Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology. NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active. NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. NOTE: For the Intel 5500 Series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.
Upgradeability	Upgradeable to two processors
Chipset	Intel® 5520 Chipset
Cache Memory	4 MB Level 3 cache (E5504) 8 MB Level 3 cache (standard)
Memory Protection	Advanced memory protection

Standard Features

Memory	Type	DDR3 Registered (RDIMM) or Unbuffered (UDIMM)	
	Standard	4 GB	(2 x 2 GB)
		6 GB	(3 x 2 GB)
		12 GB	(6 x 2 GB)
	Maximum (RDIMM)	96 GB	(12 x 8 GB)
	Maximum (UDIMM)	24 GB	(12 x2 GB)

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1333MHz, 1066MHz, or 800MHz. Please see the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.

DDR3 memory options part number decoder



Network Controller	HP NC362i Integrated Dual Port Gigabit Server Adapter

Expansion Slots

Slot Number	Bus Speed	Bus Number*	Device Number**	Hot Plug (Y/N)	PCI Voltage	Notes
3	x16 PCI-Express	3	1	N	3.3 volts	Low Profile
1	x8 PCI-Express	5	0	N	3.3 volts	Full Length Full Height
2	x8 PCI-Express	6	0	N	3.3 volts	Full Length Full Height
1	PCI-X***	Dynamic	1	N	3.3 volts	Full Length Full Height
2	PCI-X***	Dynamic	2	N	3.3 volts	Full Length Full Height

NOTE: All slots can accept universal keyed PCI cards.

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

*** PCI-X bus speed will be 133MHz when only one PCI-X card is installed. It will be 100MHz when both slots have PCI-X cards installed.

Standard Features

Storage Controller	4HDD Models	HP Embedded SATA RAID Controller (integrated into the south-bridge) supporting SW RAID 0,1,10 NOTE: Transfer rate up to 3.0 Gb/s SATA. HP Smart Array B110i SATA RAID NOTE: To enable RAID on Embedded SATA, use the HP Smart Array B110i SATA Raid controller, To enable use of the B110i, enter the ROM based setup utility(RBSU). The option for enabling RAID can be found in the Advanced section of the RBSU.
	8HDD Models	HP Smart Array P410/256MB Controller (RAID 0/1/1+0/5/5+0)
	12HDD Models	HP Smart Array P212/256MB Controller (RAID 0/1/1+0/5/5+0)
	NOTE: A diskette drive or virtual FDD using LO100 Advanced Pack is needed to install storage controller drivers during a Windows operating system installation from a CD. NOTE: A minimum of 256 MB cache, battery kit, and Smart Array Advanced Pack License Key upgrade (P/N: 516471-B21) is required to enable RAID 6, 6+0	

Storage	Diskette Drives	Via USB only
	Optical Drives	Optional HP Slim SATA DVD-ROM Optical Drive Optional HP Slim SATA DVD RW Optical Drive NOTE: Support in 4, 8, and 12 drive models . Optical drives can only be installed in 12 drive model with rear option kit (515826-B21).
	Drive Bays	Up to 14 Hot Plug SAS/SATA 3.5" drives NOTE: 4 Drive Models are Non-Hot Pluggable. Smart Array Controller must be added for Hot Plug drive capability. 4 Drive Models can be upgraded with the addition of a Smart Array Controller and a SAS/SATA Multi-lane cable (496013-B21). NOTE: The addition of a Smart Array Controller requires the addition of a SAS/SATA Multi-lane cable (496013-B21).

Maximum Internal Storage	Hot Plug SATA	14.0TB	14 x 1TB
	Hot Plug SAS	14.0TB	14 x 1TB

Standard Features

Interfaces	Parallel	None
	Network RJ-45 (Ethernet)	2 10/100/1000 NIC ports (plus 1 dedicated for the HP ProLiant Lights Out 100i Remote Management)
	Serial	1
	Pointing Device (Mouse)	0 (via USB only)
	Graphics	1
	Keyboard	0 (via USB only)
	USB	5 total ports: (2) front, (2) rear, (1) optional internal NOTE: In order to connect a USB device internally, the internal USB Cable G6 Kit must be used (536769-B21) NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.
Graphics	32MB shared supporting 1600 x 1200 x 16M resolution.	
Form Factor	Rack (2U), (3.5 in/8.89 cm)	
Embedded Systems Management	HP ProLiant Onboard Administrator and LO100i Advanced	HP ProLiant Onboard Administrator (powered by LO100i Lights-Out 100 Baseboard Management Controller) with Optional LO100i Advanced Licenses for Virtual KVM and Virtual Media. Features: • Embedded IPMI standard reporting • System event log access • Remote Serial console (serial redirection) • Browser, Telnet access • SMASH-CLP compliant • IPMI 2.0 compliant • Secure Socket Layer Encryption • Secure Shell Encryption • Virtual media (Floppy, CD, USB 2.0) with Advanced License • Virtual KVM with Advanced License

Standard Features

Core Infrastructure Management	HP Insight Control (ICE) suites	HP Insight Control suite for Linux (ICE-LX), as a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. The ICE-LX suite installs and license software modules that are integrated into HP System Insight Manager. The HP Insight Control suite for Linux (ICE-LX) serves environments requiring a Linux-based management consoles. See: www.hp.com/go/ice-linux HP Insight Control suites include one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight.
Industry Standard Compliance	ACPI V2.0 Compliant PCI 2.2 Compliant PXE Support WOL Support Microsoft® Logo certifications IPMI 2.0 Compliant	
Security	Power-on password Setup password Diskette boot control Secure Sockets Layer (SSL) Secure Shell (SSH)	
Security - Trusted Platform Module	The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. NOTE: For more information about TPM, including a white paper, go to www.hp.com/go/TPM NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment. NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.	

Standard Features

Server Power Cords	One 6' Highline (IEC-IEC) power cord ships standard NOTE: HP ProLiant DL servers no longer ship standard with NEMA power cords (163719-002) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately. If customers require a local power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix NOTE: Rack models ship standard with an IEC cable. Localized cables included with geographic specific models in other world regions.
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.
Power Supply	HP has a new design for ProLiant power. The new Common Slot Power Supply bay. This design provides the customer with commonality in power supplies across multiple platforms to save on the cost of spares and allows HP to offer multiple power solutions to fit the customers' needs. Many HP ProLiant Servers come with Common Slot, High Efficiency and Right-Size Power Supplies. Common Slot (CS) designates commonality of the power supply across multiple ProLiant servers. HP's new Common Slot power supplies are designed for highest efficiency to provide power efficiency without degrading performance of the ProLiant. Power Supplies will have efficiency ratings up to 92%. There are three Right Size power options available, depending on the configuration of your server. To make sure you select the correct power supply to meet your configuration, we suggest that you use the HP Power Advisor to decide the "Right-Size" for your configuration. All HP Common Slot power sources are UL, CE Mark Compliant, Hot Plug and Redundant.
Common Slot ProLiant	It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs. HP offers Power Supply Options: • 460Watts, Common Slot,92% Efficiency • 750Watts, Common Slot, 92% Efficiency • 1200Watts, Common Slot, 90% Efficiency NOTE: 1200W power supply not supported on the DL180G6 HP's ProLiant Common Slot Power supplies (460W & 750W) meet multiple Energy Efficiency Initiatives. Climate Savers Computing Initiative GOLD, ECOS Consulting 80PLUS GOLD and plans on offering models that meet the Energy Star for Server requirements when they are published. HP's ProLiant Common Slot Power supplies (1200W) meet multiple Energy Efficiency Initiatives. Climate Savers Computing Initiative Bronze, ECOS Consulting 80PLUS Bronze Power Supply requirements. Redundant Power: Optional (1+ 1 or n+n redundant) power supplies can be purchased through power supply option kits (see Redundant Options for part numbers).

Standard Features

System Fans	4 system fans ship standard; Non-hot plug, Non-redundant NOTE: Redundant fan kit (P/N 516009-B21) available for purchase.
Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Microsoft Windows Server Hyper-V Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Oracle Enterprise Linux (OEL) Solaris 10 for x86/x64 based Systems VMware ESX Server Citrix Essentials for XenServer (Retail) NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/supportos and our driver download page http://www.hp.com/support/DL180G6
Rack Airflow Requirements	Rack 10000 G2 series Cabinets The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors. CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm). CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.
Rack Kit	HP ProLiant DL180 rack models have fixed rails which provide support for racks with round mounting holes and tool-free support for racks with square mounting holes (including Compaq/HP 7000, 9000, 10000 and HP series), with an adjustment range of 26" - 36".
Telco Rack Support	Support for all 2 and 4 post Telco racks and threaded hole racks requires an additional option kit from Rack Solutions. The Rack Solutions brackets can be purchased at: http://www.racksolutions.com/hp.

Standard Features

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.

HP Enterprise Configurator

The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.

Service and Support

HP services provide total care and support expertise with committed response designed to meet your IT and business needs.

HP Care Pack services include coverage for the HP branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as 22" and smaller external monitors and tower UPS options up to 3kVA; these items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

To fully capitalize on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Recommended Service - Simplify ProLiant solution implementation, maintenance and management.

- Support Service - 3 Year, 9x5 Next Business Day coverage, excluding HP holidays only
- Deployment Service - Hardware Installation only

Enhanced Service - Optimize service level to increase IT performance and availability

- Support Service - 3 Year 13x5 Same Business Day, 4-Hour response coverage
- Deployment Service - Installation and Start-up only

Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays.

For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

HPC Interconnects

NOTE: High Performance Computing (HPC) interconnect technologies are available for the DL165 G6 under the Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand, Gigabit Ethernet or Myrinet Interconnects: http://www.hp.com/techservers/clusters/ucp/index.html

HPC Interconnects	InfiniBand	PCI-X and PCI-Express adapters
	Gigabit Ethernet	Use embedded ports or optional 10GbE NICs
	Myrinet XP	PCI-X Rev D, Rev E and Rev F adapters

Models

Four Drive Serial ATA (SATA) Models

NOTE: Upgrading from 4 Non-Hot Plug SATA hard drives to 4 Hot Plug SATA/SAS hard drives requires the addition of a storage controller and one Internal mini-SAS cable (496013-B21).

NOTE: Upgrading to 8 Hot Plug SATA/SAS hard drives requires the addition of a HP 2U G6 8HDD LFF DL18X KIT (506924-B21), storage controller (Smart Array P410/256MB recommended), and two Internal SATA/SAS cables (mini-SAS cable (496013-B21).

HP DL180G6 E5504 2x2GB 4LFF 487502-xx1	Processor One of the following depending on model	Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2)
HP DL180G6 L5520 2x2GB 4LFF 487506-xx1	Cache Memory One of the following depending on model	4MB shared L3 cache (E5504) 8MB shared L3 cache (L5520)
	Memory	4GB (2 x 2GB) PC3-10600E (UDIMM)
	Network Controller	HP NC362i Integrated Dual Port Gigabit Server Adapter
	Storage Controller	Embedded SATA Raid Standard RAID 0,1,10
	Hard Drive	1x 160GB Hot Plug SATA NOTE: Hot-plug functionality requires the addition of a Smart Array controller.
	Internal Storage	4.0TB (4 x 1TB Hot Plug 3.5" SATA hard drives), Maximum 4.0TB (4 x 1TB Hot Plug 3.5" SAS hard drives), Maximum
	Optical Drive	None ship standard
	Power Supply	460W common slot, high efficiency power supply
	Form Factor	Rack (2U)

Eight Drive Serial ATA (SATA) Models

NOTE: Supports up to 8 Hot Plug SATA or SAS Hard Drives.

HP DL180G6 E5520 3x2GB 8LFF 487503-xx1	Processor	Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)
	Cache Memory	8MB shared L3 cache
	Memory	6GB (3 x 2GB) PC3-10600E (UDIMM)
	Network Controller	HP NC362i Integrated Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P410 /256MB Controller (RAID 0/1/1+0/5/5+0) NOTE: A minimum of 256 MB cache, battery kit, and Smart Array Advanced Pack License Key upgrade (P/N: 516471-B21) is required to enable RAID 6, 6+0
	Hard Drive	None ship standard
	Internal Storage	8.0TB (8 x 1TB Hot Plug 3.5" SATA hard drives), Maximum 8.0TB (8 x 1TB Hot Plug 3.5" SAS hard drives), Maximum
	Optical Drive	None ship standard
	Power Supply	460W common slot, high efficiency power supply
	Form Factor	Rack (2U)

Models

Twelve Drive Serial ATA (SATA) Models

NOTE: Internal Storage expandable to 14 SAS/SATA drives with 2 Rear Drive Option Kit (488234-B21)

HP DL180G6 E5540 6x2GB 12LFF US 487507-xx1	Processor One of the following depending on model	(2) Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)
HP DL180G6 E5520 3x2GB 12LFF 487508-xx1	Cache Memory	8MB shared L3 cache
	Memory One of the following depending on model	E5540: 12GB (6 x 2GB) PC3-10600R (RDIMM) E5520: 6GB (3 x 2GB) PC3-10600E (UDIMM)
	Network Controller	HP NC362i Integrated Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P212 /256MB Controller (RAID 0/1/1+0/5/5+0) NOTE: The minimum of 256 MB cache, battery kit, and Smart Array Advanced Pack License Key upgrade (P/N: 516471-B21) is required to enable RAID 6, 6+0
	Hard Drive	None ship standard (up to 12 Hot Plug SATA or SAS drives supported)
	Internal Storage	12.0TB (12 x 1TB Hot Plug 3.5" SATA hard drives), Maximum 12.0TB (12 x 1TB Hot Plug 3.5" SAS hard drives), Maximum NOTE: Internal Storage expandable to 14 SAS/SATA drives with 2 Rear Drive Option Kit (488234-B21)
	Optical Drive	None ship standard
	Power Supply	750W common slot, high efficiency power supply
	Form Factor	Rack (2U)

Country Code Key	xx = 00	U.S.
	xx = 29	Japan
	xx = 37	APD
	xx = 42	Europe
	xx = AA	PRC

Configuration Information - Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: HP does not allow factory integration of options into standard models listed above.
Configure-to-order servers must start with a CTO Chassis.
NOTE: FIO indicates that this option is a Factory Installable Option.

Step 1: Base Configuration (choose one of the following configurable models)

Hot Plug Models

HP ProLiant DL180 G6 Hot Plug SAS/SATA Rack CTO Chassis 507168-B21

Factory Integrated Model ships with:

HP NC362i Integrated Dual Port Gigabit Server Adapter

Three available PCI-Express slots:

Slot 1: x16 low-profile/half-height slot

Slot 2 & 3: x8 full-height/full length

NOTE: Optional PCI-X option kit includes: Slot 1 and 2: full-length/full-height PCI-X 100. PCI-X slots are 64 bits; 133 MHz capable if only one PCI-X card is installed in the server.
NOTE: Optional FL/FH option kit includes: Slot 1: full length/full height slot.

One HP SATA Embedded Cable Kit

One Highline IEC Power Cord

4 Non-Hot Plug Fans

Rack (2U), (3.5 in/8.89 cm)

Tool-less Fixed Rails

Step 2: Choose Required Options (only one of the following from each list unless othe noted)

Processors

Quad-Core Processors

Intel® Xeon® processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2), FIO Base 508344-L21
NOTE: If 2 processors are desired, select one 508344-L21 and one 508344-B21.

Intel® Xeon® processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO Base 508343-L21
NOTE: If 2 processors are desired, select one 508343-L21 and one 508343-B21.

Intel® Xeon® processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO Base 508342-L21
NOTE: If 2 processors are desired, select one 508342-L21 and one 508342-B21.

Intel® Xeon® processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800), FIO Base 508341-L21
NOTE: If 2 processors are desired, select one 508341-L21 and one 508341-B21.

Configuration Information - Factory Integrated Models

Memory	Registered RDIMMs	
	HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
	HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
	Unregistered with ECC UDIMMs	
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/ NOTE: There is a maximum support limitation of 8 ranks per memory channel (maximum of 2 quad rank DIMMs per channel)	
Hard Drive Cage	HP 2U G6 4HDD CAGE Kit, FIO	506926-B21
	HP 2U G6 8HDD CAGE Kit, FIO	506927-B21
	HP 2U G6 12HDD CAGE Kit, FIO	506928-B21
	HP 2U 8SFF HDD CAGE & BKPLN G6 FIO	534958-B21
	HP 2U G6 25 SFF CAGE FIO Kit	516011-B21
Power Supply	NOTE: Many HP ProLiant Servers now offer new power options, including Common Slot Power Supplies. These power supplies come in multiple power ratings and higher efficiency levels to offer the Right Size solution to fit your configuration. This provides improved power delivery and the advantage of reclaiming lost power. Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/proliant-energy-efficient	
	HP 460W CS HE Power Supply Kit	503296-B21
	HP 750W CS HE Power Supply Kit	512327-B21
	CAUTION: Optional Power Supplies used for Redundancy "MUST" match the original supplied power supply. Upgrades for more power headroom, when replacing the original power supplies must match if purchased for redundancy. Option Kits contain optional power supply, an IEC power cable and PDU IEC cables. In ProLiant Servers that have more than one power slot (bay), only same size power supplies are recommended. If non-matched power supplies are inserted you will get errors and operation will fail.	

Configuration Information - Factory Integrated Models

Step 3: Choose Additional Factory Integratable Options (only one from each list unles otherwise noted)

Rear DVD Kit	HP DL180G6 Rear DVD Cage Kit NOTE: The x16 low profile slot is not available when this option is configured.	515826-B21
Storage Controller	HP P410/ZM FIO Smart Array Controller	462860-B21
	HP P411/256 FIO SA Cntrlr w/Battery	491193-B21
	HP P410/256 FIO SA Cntrlr w/Battery	491195-B21
	HP P212/256 FIO SA Cntrlr w/Battery	491191-B21
Redundant Power Supply	HP 460W CS HE Power Supply Kit	503296-B21
	HP 750W CS HE Power Supply Kit	512327-B21
	CAUTION: Optional Power Supplies used for Redundancy "MUST" match the original supplied power supply. Upgrades for more power headroom, when replacing the original power supplies must match if purchased for redundancy. Option Kits contain optional power supply, an IEC power cable and PDU IEC cables. In ProLiant Servers that have more than one power slot (bay), only same size power supplies are recommended. If non-matched power supplies are inserted you will get errors and operation will fail.	

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" and "Additional Options" sections below.

Core Options

NOTE: Some options may not be available for factory integration. Please contact an HP sales representative for additional information.

Unique Options	HP DL180G6 Redundant Fan Kit	516009-B21
	HP Dedicated Management Port Kit	516006-B21
	HP Internal USB Cable G6 Kit NOTE: This option required to connect a USB device internally.	536769-B21
	HP DL180 G6 3PCI-E x8, Full Height Kit NOTE: This option provides two x8 full-length/full-height slots as well as an additional x8 (x4 electrically) slot. This allows the DL180G6 to have a maximum of four (4) slots.	577668-B21
	HP PCI-X Full Riser DL180 G6 Kit NOTE: This option kit replaces the three internal expansion slots listed in step 1 base configuration. NOTE: Optional PCI-X option kit includes: Slot 1: full-length/full-height PCI-X 100; Slot 2: Full length/Full-height PCI-X 100. PCI-X slots are 64 bits; 133 MHz capable if only one PCI-X card is installed in the server.	488230-B21
	HP 2U G6 8HDD LFF DL18X KIT NOTE: Upgrading to 8 Hot Plug SATA/SAS hard drives requires the addition of a storage controller (Smart Array P410/256MB recommended), two Internal ATA/SAS cables, (mini-SAS cable (496013-B21).	506924-B21
	HP DL180G6 Rear 2LFF Kit NOTE: Supports 12 hard drive server models only. Hard Drives not included. NOTE: This option replaces the 2 Full Length, Full Height x8 PCIe slots.	488234-B21
	HP KIT 2PCI-E x8, FH, DL180G6 NOTE: This option provides 2 Full Length, Full Height x8 PCIe slots.	497145-B21
	HP KIT PCI-E x16, DL180G6 NOTE: This option replaces the 2 Full Length, Full Height x8 PCIe slots.	497143-B21

Processor	Quad-Core Processors	
	Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2)	508344-B21
	Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)	508343-B21
	Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)	508342-B21
	Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800)	508341-B21
	NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology. NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active. NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. NOTE: For the Intel 5500 Series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.	

Core Options

Memory	Registered RDIMMs	
	HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
	HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
	Unregistered with ECC UDIMMs	
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/	
Optical Drives	HP Slim SATA DVD-ROM Optical Drive	481041-B21
	HP Slim SATA DVDRW Optical Drive	481043-B21
	NOTE: Optical drives can only be installed on 8 bay hard drive models.	
Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.	
	SAS Hot Plug SFF Enterprise (ENT) Drives	
	HP 300GB 6G SAS 10K SFF DP ENT HDD	507127-B21
	HP 300GB 3G SAS 10K SFF DP ENT HDD	492620-B21
	HP 146GB 6G SAS 10K SFF DP ENT HDD	507125-B21
	HP 146GB 6G SAS 15K SFF DP ENT HDD	512547-B21
	HP 146GB 3G SAS 15K SFF DP ENT HDD	504062-B21
	HP 146GB 3G SAS 10K SFF DP ENT HDD	418367-B21
	HP 72GB 6G SAS 15K SFF DP ENT HDD	512545-B21
	HP 72GB 3G SAS 15K SFF DP ENT HDD	418371-B21
	HP 72GB 3G SAS 10K SFF DP ENT HDD	384842-B21
	HP 36GB 3G SAS 15K SFF DP ENT HDD	418369-B21
	SAS Hot Plug 3.5" Enterprise (ENT) Drives NOTE: 3G Hard Drives will operate at up to 3.0 Gb/s in 4 drive models that use the embedded controller.	
	HP 400GB 3G 10K 3.5" DP SAS ENT HDD	459508-B21
	HP 450GB 3G 15K 3.5" DP SAS ENT HDD	454232-B21
	HP 300GB 3G SAS 15K 3.5" DP HDD	416127-B21
	HP 146GB 3G SAS 15K 3.5" DP HDD	384854-B21
	HP 72GB 3G SAS 15K 3.5" DP HDD	384852-B21

Core Options

	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	
	NOTE: If selecting more than 4 hard drives or if using SAS hard drives, a Smart Array controller and two SAS/SATA cables (P/N 464830-B21) are required.	
	SAS Hot Plug SFF Midline (MDL) Drives	
	HP 500GB 6G SAS 7.2K SFF DP MDL HDD	507610-B21
	SAS Hot Plug 3.5" Midline (MDL) Drives	
	NOTE: 3G Hard Drives will operate at up to 3.0 Gb/s in 4 drive models that use the embedded controller.	
	HP 1TB 3G SAS 7.2K 3.5" DP MDL HDD	461137-B21
	HP 750GB 3G SAS 7.2K 3.5" DP MDL HDD	461135-B21
	SATA Hot Plug SFF Midline (MDL) Drives	
	HP 500GB 3G SATA 7.2K 2.5in MDL HDD	507750-B21
	HP 160GB 3G SATA 7.2K 2.5in MDL HDD	530888-B21
	SATA Hot Plug 3.5" Midline (MDL) Drives	
	HP 1TB 3G SATA 7.2K 3.5" MDL HDD	454146-B21
	HP 750GB 3G SATA 7.2K 3.5" MDL HDD	458930-B21
	HP 500GB 3G SATA 7.2K 3.5" MDL HDD	458928-B21
	HP 250GB 3G SATA 7.2K 3.5" MDL HDD	458926-B21
	SATA Hot Plug 3.5" Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K 3.5" ETY HDD	458945-B21
	NOTE: SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional specifications: http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)	
Communications	HP NC112T PCIe Gigabit Server Adapter	503746-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	NOTE: Does not support Windows 2000.	
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21
	NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each NC522SFP adapter.	
	NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs.	

Additional Options

Server Management Stand Alone Software Products	HP Lights-Out 100i Advanced Pack	
	HP LO100i Advanced Pack, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates NOTE: For additional License Kits please see the Lights-Out 100i Advanced QuickSpecs at: www.hp.com/go/lo100. NOTE: Flexible and volume quantity (AKA) license kits are available for the Lights-Out 100i Advanced Pack licenses as well as Electronic License To Use (E-LTU). AKA Tracking licenses require a 100 unit minimum forecast at initial contract signing. For these additional part numbers, please refer to QuickSpecs at this link for more information: http://h18004.www1.hp.com/products/servers/management/remotemgmt.html	452151-B21
HP Insight Control (ICE) suites	HP Insight Control suite for Linux (ICE-LX)	
	HP Insight Control for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates NOTE: This part number can be used to purchase one (1) license with a single activation key. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. NOTE: One certificate is shipped for each license.	464423-B22
	HP Insight Control for Linux, Media pack (DVD) - No licenses included NOTE: This optional Media pack DVD contains the ISO image for HP Insight Control suite for Linux, HP System Insight Manager, HP Insight Power Manager, HP Insight Virtual Machine Manager, and an integrated installer. Servers must be acquired separately. NOTE: This Media pack is optional because the latest ISO image and latest updates may be downloaded at no cost from: http://www.hp.com/go/ice-linux (click on Download button). NOTE: For additional License Kits, including electronic licensing options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html	464422-B22
HP Graphic Card Powe Adapter Kit	HP Graphic Card Power Adapter Kit	533955-B21
Security	HP Trusted Platform Module Option Kit	488069-B21

Additional Options

Storage Controllers	SAS Controllers	
	HP Smart Array P800	
	HP Smart Array P800/512 BBWC Controller	381513-B21
	NOTE: The HP Smart Array P800 controller provides support for external storage on the DL180G6 server. Local storage is supported on the DL180 using either the P212 or P410 controllers.	
	HP Smart Array P212 Controller	
	HP P212/Zero Memory Smart Array Controller	462828-B21
	HP P212/256MB Smart Array Controller	462834-B21
	HP Smart Array P410 Controller	
	HP Smart Array P410/256MB Controller	462862-B21
	HP Smart Array P410/512MB BBWC Controller	462864-B21
	HP Smart Array P411 Controller	
	HP Smart Array P411/256MB Controller	462830-B21
	HP Smart Array P411/512MB BBWC	462832-B21
	Optional Upgrades	
	256 MB Cache Module NOTE: Supported on HP Smart Array P212 Controller only.	462968-B21
	512MB BBWC NOTE: Supported on HP Smart Array P410 Controller and HP Smart Array P411 Controller only.	462967-B21
	Battery Kit upgrade NOTE: To enable BBWC on the 256MB cache. NOTE: Supported on HP Smart Array P212 Controller, HP Smart Array P410 Controller, and HP Smart Array P411 Controller only.	462969-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html (Smart Array P800 Controller) http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html (Smart Array P212 Controller) http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html (Smart Array P410 Controller) http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html (Smart Array P411 Controller)	
	SCSI HBA	
	HP SC11Xe Host Bus Adapter NOTE: Recommended HBA for SCSI tape drive connect.	412911-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SCSI HBA)	

Additional Options

HPC Specific Options	HP IB 4X DDR Conn-X PCI-e G2 Dual Port HCA	483514-B21
	HP IB 4X DDR PCI-e DUAL PORT HCA	448397-B21
	HP IB 4X QDR PCI-e G2 Dual Port HCA	517721-B21
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html	

Tape Storage	NOTE: For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	Tape Drives	
	USB Rack-Mount Tape Solutions	
	HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive	AG703A
	NOTE: Pre-configured with one DAT 160 USB tape drive.	
	SAS Rack-Mount Tape Solutions	
	NOTE: HP recommends purchasing the HP Smart Array P212 (462828-B21) for a dedicated SAS HBA for tape.	
	HP StorageWorks 1U SAS Rack-Mount Kit with one LTO-4 Ultrium 1760	EH946A
	NOTE: Pre-configured with one LTO-4 Ultrium 1760 SAS tape drive.	
	HP StorageWorks 1U SAS Rack-Mount Kit	AE459A
	NOTE: Supports up to (2) half-height SAS tape drives.	
	HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive	DW085A
	NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A).	
	HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive	EH847A
	NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A).	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.html (Worldwide)	
	For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: http://www.hp.com/go/connect.	
	Tape Autoloaders	
	HP StorageWorks 1/8 G2 Tape Autoloader	
	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
	HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
	HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit	
	NOTE: Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions.	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://www.hp.com/go/automation needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.	
	Tape Libraries	
	HP StorageWorks MSL2024 Tape Library	
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
	HP StorageWorks MSL4048 Tape Library	
	HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A

Additional Options

	HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library	AH560A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://www.hp.com/go/automation needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.	
Disk-Based Backup	RDX Removable Disk Backup	
	HP StorageWorks RDX500 External Removable Disk Backup System	AJ935A
	NOTE: 500GB of Disk Storage.	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html	
	HP D2D Backup System	
	HP StorageWorks D2D2502i Backup System	EJ001A
	NOTE: 2 TB raw capacity/1.5 TB useable capacity.	
	HP StorageWorks D2D2504i Backup System	EJ002A
	NOTE: 4 TB raw capacity/3 TB useable capacity.	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://www.hp.com/go/d2d.	
StorageWorks Options	NOTE: The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html.	
	StorageWorks Fibre Channel HBA	
	HP StorageWorks FC1143 4Gb PCI-X 2.0 FC HBA	AB429A
	HP StorageWorks FC1243 4Gb PCI-X 2.0 Dual Channel FC HBA	AE369A
	HP StorageWorks FC2142SR 4Gb PCI-e FC HBA	A8002A
	HP StorageWorks FC2242SR Dual Channel 4Gb PCI-e FC HBA	A8003A
	HP StorageWorks FC1142SR 4Gb PCI-e FC HBA	AE311A
	HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e FC HBA	AE312A
	HP StorageWorks FC2143 4Gb PCI-X 2.0 FC HBA	AD167A
	HP StorageWorks FC2243 4Gb PCI-X 2.0 Dual Channel FC HBA	AD168A
	HP StorageWorks 81E 8Gb Single Port PCI-e FC HBA	AJ762A
	HP StorageWorks 82E 8Gb Dual Port PCI-e FC HBA	AJ763A
	HP StorageWorks 82Q 8Gb Dual Port PCI-e FC HBA	AJ764A
	HP StorageWorks 81Q 8Gb Single Port PCI-e FC HBA	AK344A
	StorageWorks SCSI HBA	
	HP U320e SCSI Host Bus Adapter	AH627A
	NOTE: Recommended for MSL SCSI Tape Library connect.	

Additional Options

HP StorageWorks Modular Smart Array	MSA SAN Storage Arrays	
	HP StorageWorks 50 Modular Smart Array NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide)	364430-B21
	HP StorageWorks MSA60 Array NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html	418408-B21
	HP StorageWorks MSA70 Array NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html	418800-B21
Uninterruptible Power Systems	HP Tower UPS	
	HP T1000v Uninterruptible Power System	
	HP T1000v UPS NOTE: The T1000v is available in China and India only. NOTE: Please see QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13130_div/13130_div.html (Worldwide)	AF443A
	HP Rack-mountable UPS	
	HP R1.5 VA 1U UPS NA	AF419A
	HP R1.5 VA 1U UPS INTL	AF418A
	HP, R1.5kVA UPS, 1U, JPN/TW NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12507_div/12507_div.html (Worldwide)	AF421A
	HP R3000v UPS Uninterruptible Power System	
	HP R3000v UPS NOTE: The R3000v is available in China and India only. NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13129_div/13129_div.html (Worldwide)	AF444A

Additional Options

HP Rack Series	HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet	AF034A
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet	AF038A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet	AF044A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet	AF045A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
Rack Kits	HP Rack Cable Management Velcro Clips	379820-B21
HP Rack Options	HP KVM Switch Options	
	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	2x16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack	AF604A
	NOTE: Requires PS/2 and one USB port on server.	
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	HP 1x4 Console Switch	AF611A
	HP PS2 Server Console Cable, 6 foot, 2-Pack	AF612A
	HP USB Server Console Cable, 6 foot, 2-Pack	AF613A
	NOTE: required for supporting USB peripherals.	
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	HP Serial Console Server Options	
	HP 16 Port Serial Console Server (worldwide)	AF101A
	HP 48 Port Serial Console Server (worldwide)	AF102A
	Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
	Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A
	NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	

Additional Options

USB Options	USB 1.44-MB External Diskette Drive	DC141B
	USB Floppy Drive	DC361B
	HP USB-PS/2 Mouse	DC369A
	HP Keyboard (USB) standard 2004	DT528A#xxx
Service and Support Offerings (HP Care Pack Services)	Hardware Services 4-Hour On-site Service	
	13-Hour x 5-Day Coverage, 3 Years, Electronic	UH271E
	24-Hour x 7-Day Coverage, 3 Years, Electronic	UH272E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	UH270E
	Hardware Services 6-Hour Call to Repair On-Site Service	
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UH273E
	Hardware Installation, Electronic	UH301E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack.	

Memory

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

HP ProLiant DL180 G6

Standard Memory (depending on model)

4 GB (2 x 2 GB) PC3-10600E Unbuffered memory, with Advanced ECC Capabilities Memory installed.
6 GB (3 x 2 GB) PC3-10600E Unbuffered memory, with Advanced ECC Capabilities Memory installed.
12 GB (6 x 2 GB) PC3-10600R Registered memory, with Advanced ECC Capabilities Memory installed.

Maximum Memory

Up to 96 GB memory is available with the optional installation of PC3-10600 Registered DIMM memory kits.

NOTE: Charts do not represent all possible memory configurations.

DDR3 memory population guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:
www.hp.com/go/ddr3memory-configurator

Some DIMM installation guidelines are summarized below:

- For servers with twelve (12) memory slots
- There are three (3) channels per processor; six (6) channels per server
- There are two (2) DIMM slots for each memory channel; twelve (12) total slots
- Memory channel 1 consists of the two (2) DIMMs that are closest to the processor
- Memory channel 3 consists of the two (2) DIMMs that are furthest from the processor
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- To maximize performance, balance the total memory capacity between all installed processors
- It is not required, but it is recommended to load the channels similarly if possible
- You can only have up to eight (8) ranks installed per channel
- You can only install two quad-rank DIMMs per channel
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3;6 on a 3DPC system or 1,4; 2,5; on a 2DPC system
- No mixing DIMM voltage; all DIMMs must be the same voltage

Memory

DIMM Type ->	Registered DIMMS (RDIMMs)					Unbuffered with ECC DIMMs (UDIMMs)	
DIMM Rank ->	Dual Rank (2R)				Quad Rank (4R)	Single Rank (1R)	Dual Rank (2R)
DIMM Capacity ->	2GB	4GB	8GB	8GB	4GB	1GB	2GB
DIMM Native Speed (MHz) ->	1333	1333	1066	1333	1066	1333	1333
SLOTS THAT CAN BE POPULATED							
12 slot servers	12	12	12	12	12	12	12
MAXIMUM CAPACITY (GB)							
12 slot servers	24	48	96	96	48	12	24
POPULATED DIMM SPEED (MHz)							
1 DIMM Per Channel	1333	1333	1066	1333	1066	1333	1333
2 DIMM Per Channel	1066	1066	1066	1333*	800	1066	1066
3 DIMM Per Channel	800	800	800	800	not supported	not supported	not supported
* - supported with ROM update via ROM Based Setup Utility (RBSU)							

NOTES:

- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities.
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor.
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, you still run at 1066MHz.
- If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, you run at 1066MHz.
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz.
- 95 Watt CPU's are required for 1333MHz DIMM speeds. All other CPU's are capable of up to 1066MHz.
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

DIMM slot and configuration diagrams

Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.

12 DIMM SLOTS (6 per CPU node)					
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D	1	D	Chnl 1
	2	A	2	A	
Chnl 2	3	E	3	E	Chnl 2
	4	B	4	B	
Chnl 3	5	F	5	F	Chnl 3
	6	C	6	C	

Memory

Standard memory configuration (1 CPU model)

- 6GB, consisting of three (3) 2GB dual-rank PC3-10600 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: empty	1	D: empty	Chnl 1
	2	A: 2GB DIMM	2	A: empty	
Chnl 2	3	E: empty	3	E: empty	Chnl 2
	4	B: 2GB DIMM	4	B: empty	
Chnl 3	5	F: empty	5	F: empty	Chnl 3
	6	C: 2GB DIMM	6	C: empty	

Standard memory plus optional memory (1 CPU model)

- 30GB, consisting of three (3) 2GB RDIMMs plus three (3) 8GB RDIMMs
  - 3x 2GB dual-rank PC3-10600 RDIMMs
  - 3x 8GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 8GB DIMM	1	D: empty	Chnl 1
	2	A: 2GB DIMM	2	A: empty	
Chnl 2	3	E: 8GB DIMM	3	E: empty	Chnl 2
	4	B: 2GB DIMM	4	B: empty	
Chnl 3	5	F: 8GB DIMM	5	F: empty	Chnl 3
	6	C: 2GB DIMM	6	C: empty	

Standard memory replaced with optional memory (1 CPU model)
RDIMM maximum configuration

- 48GB, consisting of six (6) 8GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 8GB DIMM	1	D: empty	Chnl 1
	2	A: 8GB DIMM	2	A: empty	
Chnl 2	3	E: 8GB DIMM	3	E: empty	Chnl 2
	4	B: 8GB DIMM	4	B: empty	
Chnl 3	5	I: 8GB DIMM	5	I: empty	Chnl 3
	6	C: 8GB DIMM	6	C: empty	

Memory

UDIMM maximum configuration (1 CPU model)

- 12GB, consisting of six (6) 2GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 2GB DIMM	1	D: empty	Chnl 1
	2	A: 2GB DIMM	2	A: empty	
Chnl 2	3	E: 2GB DIMM	3	E: empty	Chnl 2
	4	B: 2GB DIMM	4	B: empty	
Chnl 3	5	F: 2GB DIMM	5	F: empty	Chnl 3
	6	C: 2GB DIMM	6	C: empty	

Standard memory replaced with optional memory (2 CPU model)
RDIMM maximum configuration

- 96GB, consisting of twelve (12) 8GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 8GB DIMM	1	D: 8GB DIMM	Chnl 1
	2	A: 8GB DIMM	2	A: 8GB DIMM	
Chnl 2	3	E: 8GB DIMM	3	E: 8GB DIMM	Chnl 2
	4	B: 8GB DIMM	4	B: 8GB DIMM	
Chnl 3	5	F: 8GB DIMM	5	F: 8GB DIMM	Chnl 3
	6	C: 8GB DIMM	6	C: 8GB DIMM	

UDIMM maximum configuration (2 CPU model)

- 24GB, consisting of twelve (12) 2GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 2GB DIMM	1	D: 2GB DIMM	Chnl 1
	2	A: 2GB DIMM	2	A: 2GB DIMM	
Chnl 2	3	E: 2GB DIMM	3	E: 2GB DIMM	Chnl 2
	4	B: 2GB DIMM	4	B: 2GB DIMM	
Chnl 3	5	F: 2GB DIMM	5	F: 2GB DIMM	Chnl 3
	6	C: 2GB DIMM	6	C: 2GB DIMM	

NOTE: Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB

Memory

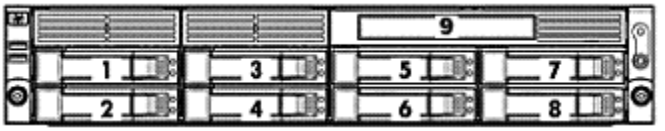
- 4GB = 4096MB
- 8GB = 8192MB

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator

Memory	Registered RDIMMs	
	HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
	HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
	Unregistered with ECC UDIMMs	
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/	

Storage

8 Drive Cage with DVD-Drive bay



1-8 Eight 3.5" Hot Plug SAS/SATA Hard Drive Bays

9 DVD-ROM, DVD RW

12 Drive Cage

1-12 Twelve 3.5" Hot Plug SAS/SATA Hard Drive Bays

13-14 Not Shown Two Rear 3.5" Hot Plus SAS/SATA Hard Drive Bays

Drive Support

Removable Media

	Quantity Supported	Position Supported	Controller
DVD-ROM	Up to 1	9	Integrated IDE (ATAPI) (optional)
DVD RW	Up to 1	9	Integrated IDE (ATAPI) (optional)

Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

SATA Hot Plug SFF Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G 7.2K 160GB 3G 7.2K	Up to 8 with 8 drive cage	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller
	Up to 14 with 12 drive cage + Rear Drive Cage	1-14	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller NOTE: Smart Array P212 Controllers recommended. HP Smart Array P800/512 BBWC Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

SATA Hot Plug 3.5" Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB 3G 7.2K 750GB 3G 7.2K 500GB 3G 7.2K 250GB 3G 7.2K	Up to 8 with 8 drive cage	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller
	Up to 14 with 12	1-14	HP Smart Array P212/Zero Memory Controller

Storage

	drive cage + Rear Drive Cage		HP Smart Array P212/256 MB Controller NOTE: Smart Array P212 Controllers recommended. HP Smart Array P800/512 BBWC Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

SATA Hot Plug 3.5" Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
160GB 3G 7.2K	Up to 8 with 8 drive cage	1-8	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller
	Up to 14 with 12 drive cage + Rear Drive Cage	1-14	

SAS Hot Plug SFF Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 6G SAS 7.2K	Up to 8 with 8 drive cage	1-8	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller
	Up to 14 with 12 drive cage + Rear Drive Cage	1-12	

SAS Hot Plug 3.5" Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB 3G 7.2K 750GB 3G 7.2K	Up to 8 with 8 drive cage	1-8	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller
	Up to 14 with 12 drive cage + Rear Drive Cage	1-12	

SAS Hot Plug SFF Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 6G 10K 300GB 3G 10K 146GB 6G 15K 146GB 3G 15K 146GB 6G 10K 146GB 3G 10K 72GB 6G 15K 72GB 3G 15K 72GB 3G 10K 36GB 3G 15K	Up to 8 with 8 drive cage	1-8	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller
	Up to 14 with 12 drive cage + Rear Drive Cage	1-12	

SAS Hot Plug 3.5" Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller

Storage

400GB 3G 10K 450GB 3G 15K 300GB 3G 15K 146GB 3G 15K 72GB 3G 15K	Up to 8 with 8 drive cage Up to 14 with 12 drive cage + Rear Drive Cage	1-8 1-12	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

External Storage

	Quantity Supported	Position Supported	Controller
50 Modular Smart Array	Up to 4	External	HP Smart Array P800/512 BBWC Controller
60 Modular Smart Array	Up to 4	External	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller
	Up to 8	External	HP Smart Array P800/512 BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 BBWC Controller
70 Modular Smart Array	Up to 2	External	HP Smart Array P212 Zero Memory Controller HP Smart Array P212/256 MB Controller
	Up to 4	External	HP Smart Array P800/512 BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

Tape and Disk-Based Backup

NOTE: For a complete listing of compatible tape and disk-based backup offerings, please visit: www.hp.com/go/connect.

	Position Supported	Controller	Controller Part Number
HP StorageWorks SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-3 Ultrium 960 LTO4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21
HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS	External	HP Smart Array P212/Zero Memory Controller	462828-B21

Storage

Tape Drives, External
DAT 160 SAS
LTO-2 Ultrium 448 SAS
LTO-3 Ultrium 920 SAS
LT0-4 Ultrium 1760 SAS
LTO-4 Ultrium 1840 SAS
1U Rack-Mount Kit
3U Rack-Mount Kit

HP StorageWorks SCSI Tape Automation, External DAT 72x10 Autoloader 1/8 G2 Tape Autoloader MSL2024 MSL4048	External	HP SC11Xe Host Bus Adapter	412911-B21
		HP U320e SCSI Host Bus Adapter NOTE: Recommended for MSL tape libraries.	AH627A
HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048	External	HP Smart Array P212/Zero Memory Controller	462828-B21
HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for detailed connectivity information.	N/A
HP StorageWorks RDX Removable Disk Backup System RDX160 RDX320 RDX500	External	USB 2.0 Port	N/A
HP StorageWorks D2D Backup Systems D2D120 D2D130 D2D2500i D2D4000i	External	Embedded Network Controller	N/A

Power Specifications

HP 460W Power Supply Part Number - AC 460W PSU	503296-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	208	200	220	230	240
Maximum Rated Output Wattage	460	460	460	460	460	460	460
Nominal Input Current (A rms)	5.5	4.5	2.6	2.5	2.4	2.3	2.2
Max Rated Input Wattage Rating (Watts)	526	520	505	505	503	503	503
Max. Rated VA (Volt-Amp)	548	542	527	527	524	524	524
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	1794	1773	1725	1725	1715	1715	1715

HP 750W Power Supply Part Number - AC 750W PSU	512327-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	208	200	220	230	240
Maximum Rated Output Wattage	750	750	750	750	750	750	750
Nominal Input Current (A rms)	8.9	7.4	4.3	4.1	3.9	3.7	3.6
Max Rated Input Wattage Rating (Watts)	857	847	824	825	820	820	820
Max. Rated VA (Volt-Amp)	894	884	859	859	854	854	854
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	2925	2892	2812	2812	2797	2797	2797

Optional Country Power Cords and Jumper Cords

WW	HP 2m 15A C20 C13 Universal Jumper Cord	AF590A
Brazil	HP 1.83m 10A C13 NBR14136 Power Cord	AF591A

System Unit	Dimensions (H x W x D) (with bezel)	3.45" x 17.64" x 28.23" in (8.76 x 44.80 x 71.71 cm)		
	Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	45.0 lb (16.80 kg)	
		Minimum (one hard drive, power supply, and processor installed)	32.0 lb (11.94 kg)	
	Input Requirements (per power supply)	Rated Line Voltage	90 – 132 VAC, 180 - 264 V	
		Rated Input Current	460 Watt	7.1 A (at 120 VAC) 3.5 A (at 240 VAC)
			750 Watt	7.4 A (at 120 VAC) 3.6 A (at 240 VAC)
		Rated Input Frequency	50 to 60 Hz	
		Rated Input Power	460 & 750 watt - 852 W	
	BTU Rating	Maximum	460 Watt	1773 BTU/hr (at 120 VAC) 1715 BTU/hr (at 240 VAC)
			750 Watts	2892 BTU/hr (at 120 VAC) 2797 BTU/hr (at 240 VAC
	Power Specifications	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient • Click on the system of interest. Example: DL180 G6 • Follow the instructions of the next screens.		
	Power Supply Output (per power supply)	Rated Steady-State Power	460 W (at 100 VAC) 750 W (at 100 VAC) 460 W (at 200 VAC) 750 W (at 200 VAC)	
		Maximum Peak Power	460 W (at 100 VAC) 750 W (at 100 VAC) 460 W (at 200 VAC) 750 W (at 200 VAC)	
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed.	

			System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
		Idle	
		LWAd	6.8 B
		LpAm	50 dBA
		Operating	
		LWAd	6.8 B
		LpAm	50 dBA

NC362i Integrated Dual Port Gigabit Server Adapter	Network Interface	Integrated 10/100/1000BASE-T Transceiver Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.	
	Data Transfer Method	Compliant to x1 PCIe Specification	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000 Mb/s
	Connector	RJ-45	
	Cable Support	Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethernet on standard Category 5 UT	

Technical Specifications

HP 160GB 3G SATA 7.2K 3.5" ETY HDD 458945-B21	160GB 7,200 rpm	Capacity	160,041MB	
		Height	1.04 in (26.4 mm)	
		Width	4.36 in (110.7 mm)	
		Depth	7.25 in (184.2 mm)	
		Interface	Serial ATA	
		Transfer Rate (Maximum)	3Gb/s	
		Native Command Queuing	Supported	
		Seek Time (typical reads, including settling)	Single Track	2.0 ms
			Average	<11 ms
			Full-Stroke	23.0 ms
			Rotational Speed	7,200 rpm
		Physical Configuration	Bytes/Sector	512
			Logical Blocks	312,581,808
		Operating Temperature	41° to 131° F (5° to 55° C)	

Smart Array P212 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial ATA)
	SAS Connectors	1 internal/1 external (Mini-SAS) x8 wide port connectors
	Cache Memory Speed	DDR-2/533 MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe 2.0 provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 256MB ECC protected cache; transportable with battery-backed upgrade. NOTE: The 256MB cache is not battery-backed or transportable.
	Logical Drives Supported	Up to 32 logical volumes
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6, 6+0 (Advanced Data Guarding) NOTE: A minimum of 256 MB cache, battery kit, and Smart Array Advanced Pack License Key upgrade is required to enable RAID 6, 6+0 RAID 5, 5+0 (Distributed Data Guarding) NOTE: The 256 MB & Battery Kit upgrade is required to enable RAID 5, 5+0 support RAID 1, 1+0 (Striping & Mirroring) RAID 0 (Striping)

Technical Specifications

Smart Array P410/410i Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial ATA)
	SAS Connectors	2 internal (Mini-SAS) x8 wide port connectors
	Cache Memory Speed	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe 2.0 provides 2GB/s maximum bandwidth
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth
	Cache Memory	40-bit 256MB ECC protected cache (72-bit 512MB BBWC module upgrades available); transportable with battery-backed upgrade
	Logical Drives Supported	Up to 32 logical drives
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6, 6+0 (Advanced Data Guarding) NOTE: The minimum of 256 MB cache, battery kit, and Smart Array Advanced Pack License Key upgrade is required to enable RAID 6, 6+0 RAID 5, 5+0 (Distributed Data Guarding) NOTE: The 256 MB & Battery Kit upgrade is required to enable RAID 5, 5+0 support of the Smart Array P410i RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.